REMARKS

Entry of this amendment is requested. The Examiner objected to the claims as referring to claim numbers that were no longer applicable. It appears that during the course of the preliminary amendments, Applicants erred in the numbering of the claims, which resulted in the claim numbers being off by one number. Hence, Applicants and the Examiner were not referring to the same claims in previous submissions. In order to correct this situation, claims 1-94 have been cancelled herein and rewritten as claims 95-124. Applicants sincerely apologize for any inconvenience to the Examiner and expect that these amendments will eliminate the Examiner's objections and rejections.

The Examiner objected to the specification at page 13, lines 6-8, stating that the intended definition of "n" could not be determined. Applicants have amended the specification to clarify the definition of "n."

The Examiner rejected claims 1, 27, 33, 46 and 48-64 under 35 USC §112, second paragraph, as being indefinite. Regarding claim 1 (rewritten as new claim 95), Applicants have added a step comprising enzymatic synthesis to the claimed method. As previously mentioned, Applicants have corrected the numbering of all claims, hence the Examiner's rejection in item 11 of the office action regarding claims 27 and 33 should be withdrawn. Regarding item 12 of the office action, the renumbering of the claims has eliminated the referenced duplication. Regarding item 13 of the office action, Applicants have corrected the term "saccharide" to "polysaccharide" (see new claims 100-102).

Regarding item 14 of the office action, a typographical error was made in drafting the application. Deoxyribomutase was previously known as EC 2.7.5.6 instead of EC 2.7.5.1 (see attached notes). The claim and the specification has been amended accordingly.

In response to item 15 of the office action, Applicants have corrected claim 74 (new claim 115) to recite SEQ ID NO:13. Applicants also believe that the renumbering of the claims in the present amendment addresses the rejections in items 16 and 17 of the office action.

The Examiner also rejected all pending claims under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The Examiner maintains that the claimed method encompasses any pathway which would produce a deoxyribonucleoside as long as one of the reactions in the pathway is the conversion of dR1P to a deoxyribonucleoside by any means. Furthermore, the Examiner rejected all pending claims under 35 U.S.C. 112, first paragraph, as not enabled. The Examiner maintains that the specification does not enable a method where dR1P and a nucleobase are reacted in the presence of any enzyme under any conditions.

The Examiner does indicate that there is written support for and that the specification is enabled for conversion of dR1P to a deoxyribonucleoside with thymidine phosphorylase and purine nucleoside phosphorylase. Claim 1 has been rewritten as new claim 95, and recites purine nucleoside phosphorylase as the catalyst for the reaction. Hence, the claims no longer cover *any* pathway which would produce a deoxyribonucleoside nor a method catalyzed by *any* enzyme, and Applicants respectfully request that these rejections be withdrawn.

The Examiner further rejected all pending claims as obvious under 35 U.S.C. 103(a) based on several combinations of references. First, the claims were rejected over Yamauchi et al. (EP 0411158; cited in IDS) in view of Baranov et al. (EP 0593757). The claims were also rejected as obvious over Barbas (cited in specification) in view of Baranov. Claims 50 and 53 were rejected as obvious over Barbas in view of Baranov, and further in view of DeFrees et al. (WO 96/32491).

Applicants have amended the claims to indicate that the method of claim 95 involves elimination of the inorganic phosphate by substrate phosphorylation. Applicants maintain that none of the cited references teach or indicate that the inorganic phosphate can be removed by substrate phosphorylation. Hence, the claimed invention would not have been obvious in view of the cited references.

No fees are believed due with this amendment, however authorization is given to charge deposit account no. 50-0624, should there be any fees due.

Respectfully submitted,

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Enclosures

EC 5 Isomerases
EC 5.4 Intramolecular Transferases
EC 5.4.2 Phosphotransferases (Phosphomutases)
EC 5.4.2.7 phosphopentomutase

IntEnz Enzyme Nomenclature

EC 5.4.2.7

NC-IUBMB view • ENZYME view

Names

Common name:	phosphopentomutase
Other name(s):	α-D-glucose-1,6-bisphosphate:deoxy-D-ribose-1-phosphate phosphotransferase
	D-ribose 1,5-phosphomutase
	deoxyribomutase
	deoxyribose phosphomutase
	phosphodeoxyribomutase
	phosphoribomutase
Systematic name:	α-D-ribose 1,5-phosphomutase

Reaction

α-D-ribose 1-phosphate = D-ribose 5-phosphate

Comments

Also converts 2-deoxy-α-D-ribose 1-phosphate into 2-deoxy-D-ribose 5-phosphate. α-D-Ribose 1,5-bisphosphate, 2-deoxy-α-D-ribose 1,5-bisphosphate, or α-D-glucose 1,6-bisphosphate can act as cofactor. Formerly EC 2.7.5.6.

Links to other databases

BRENDA, CSA, ERGO, GO, KEGG, NIST 74, PDB

UniProt (61):
[show]

References

1. Hammen-Jepersen, K. and Munch-Petersen, A. Phosphodeoxyribomutase from *Escherichia coli*. Purification and some properties. *Eur. J. Biochem.* 17 (1970) 397-407. [PMID: 4992818]
2. Kammen, H.O. and Koo, R. Phosphopentomutases. I. Identification of two activities in rabbit tissues. *J. Biol. Chem.* 244 (1969) 4888-4893. [PMID: 5824563]
3. Ray, W.J., Jr. and Peck, E.J., Jr. Phosphomutases, In: Boyer, P.D. (Ed.), *The Enzymes*, 3rd ed., vol. 6, Academic Press, New York, 1972, pp. 407-477.

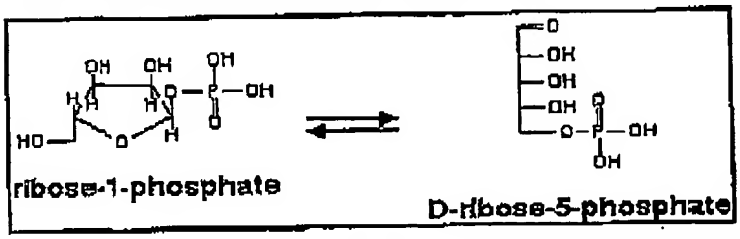
[redacted] *E. coli K-12* Reaction: 5.4.2.7

[redacted]

Superclasses: EC-Reactions -> 5 -- Isomerases -> 5.4 -- Intramolecular transferases (mutases) -> 5.4.2 -- Phosphotransferases (phosphomutases)

phosphopentomutase : deoB

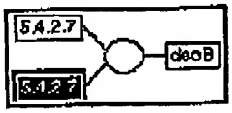
In Pathway: PRPP biosynthesis II , (deoxy)ribose phosphate degradation



The reaction direction shown, that is, A + B <==> C + D versus C + D <==> A + B, is in accordance with the Enzyme Commission system.

Comment:
This reaction is involved in the catabolism of ribo- and deoxyribonucleosides.

Gene-Reaction Schematic: [redacted]



Unification Links: ENZYME:5.4.2.7

[redacted]

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